United States Department of Agriculture

Natural Resources Conservation Service

Kewaunee & Ahnapee River Watershed Project

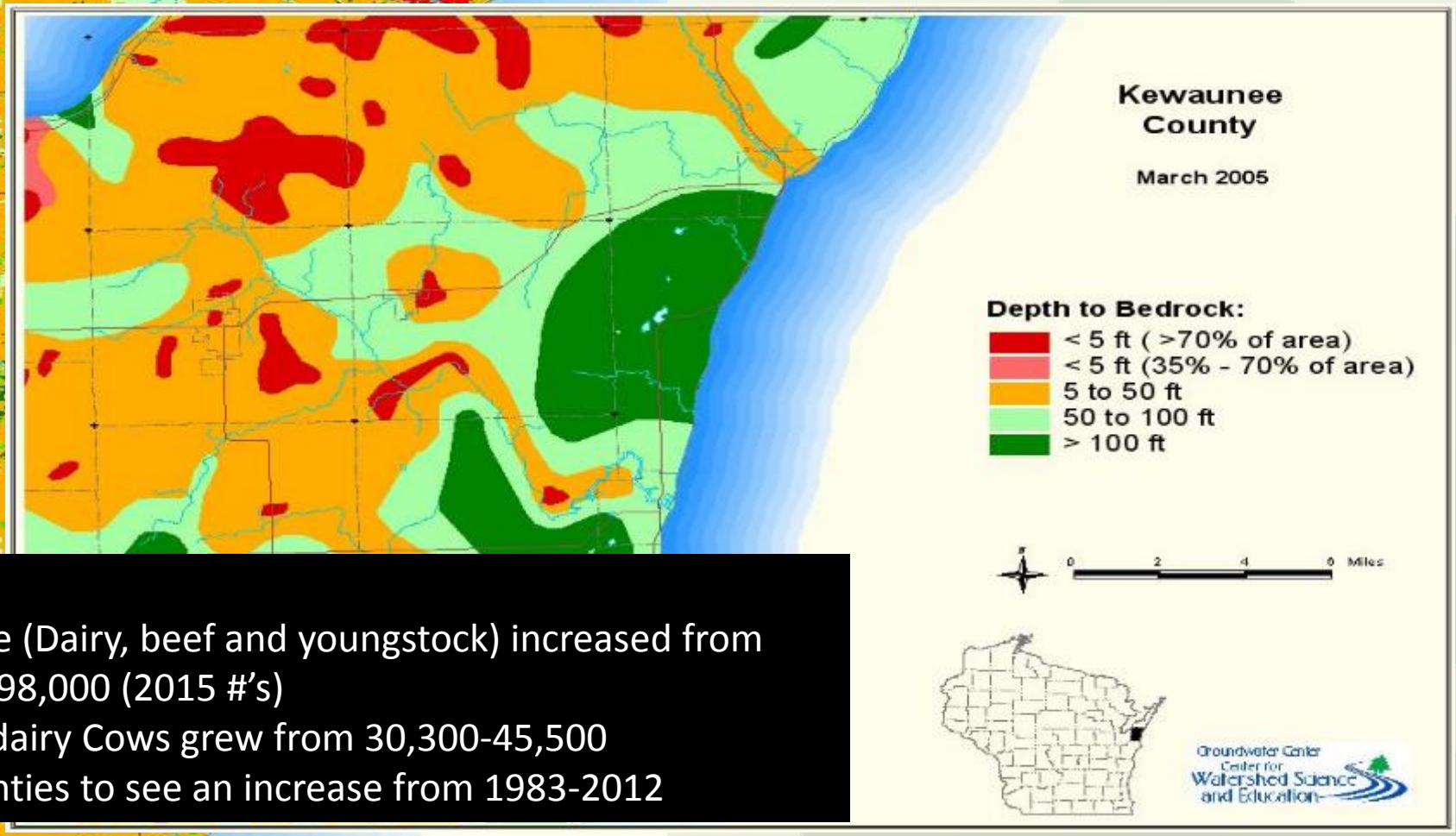
Technical Advisory Group
Davina Bonness, County Conservationist
Betsy Doolittle, Area Resource Conservationist
Joe Johnson, District Conservationist
September 3, 2015

Mission Statement

- Initiate a planning process to work within the Kewaunee & Ahnapee Watersheds to identify resource concerns, evaluate best management practices, and implement acceptable solutions.

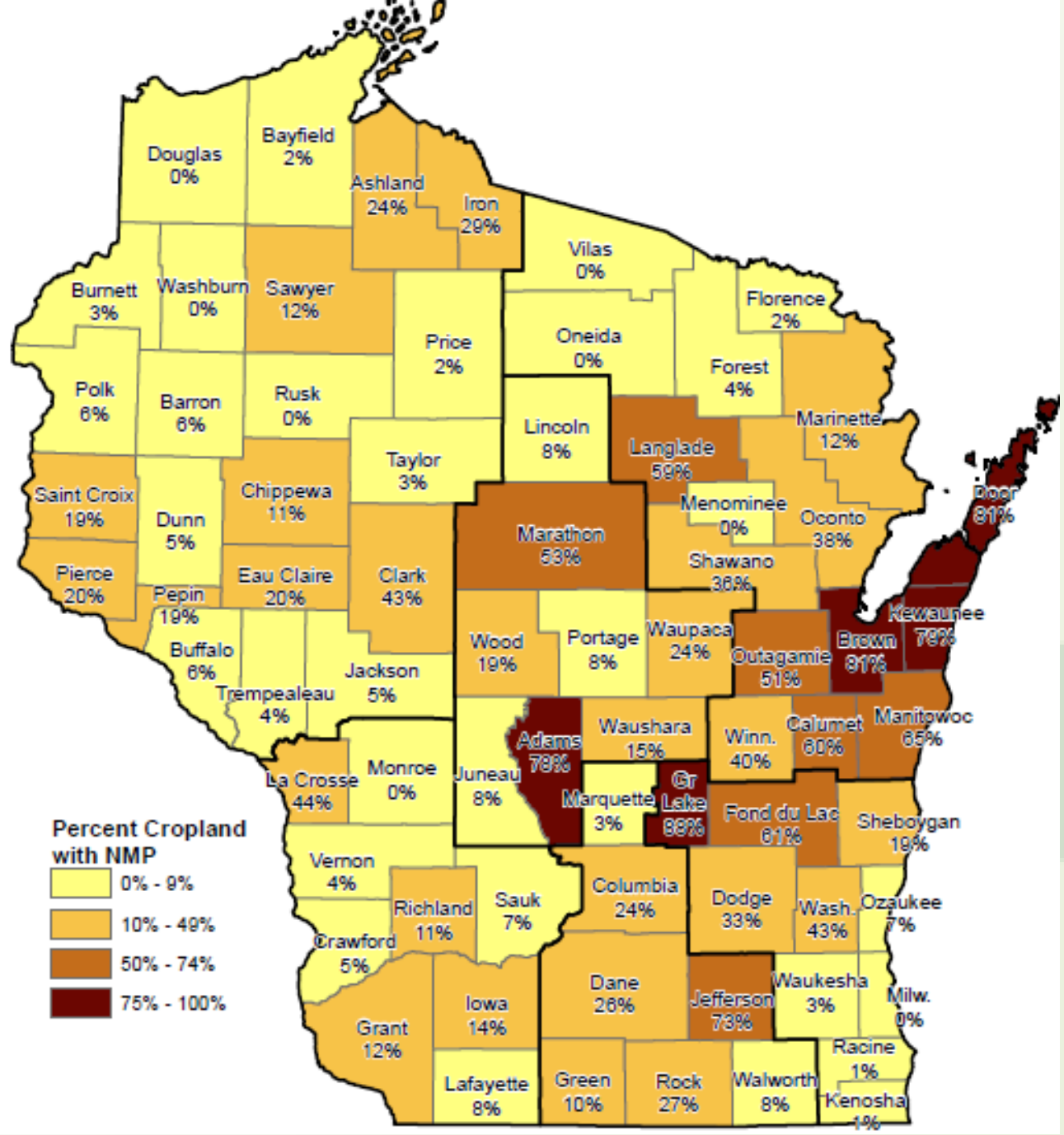
  – Planning Team:
    - Davina Bonness
    - Betsy Doolittle
    - Joe Johnson

Background



Since 1983,

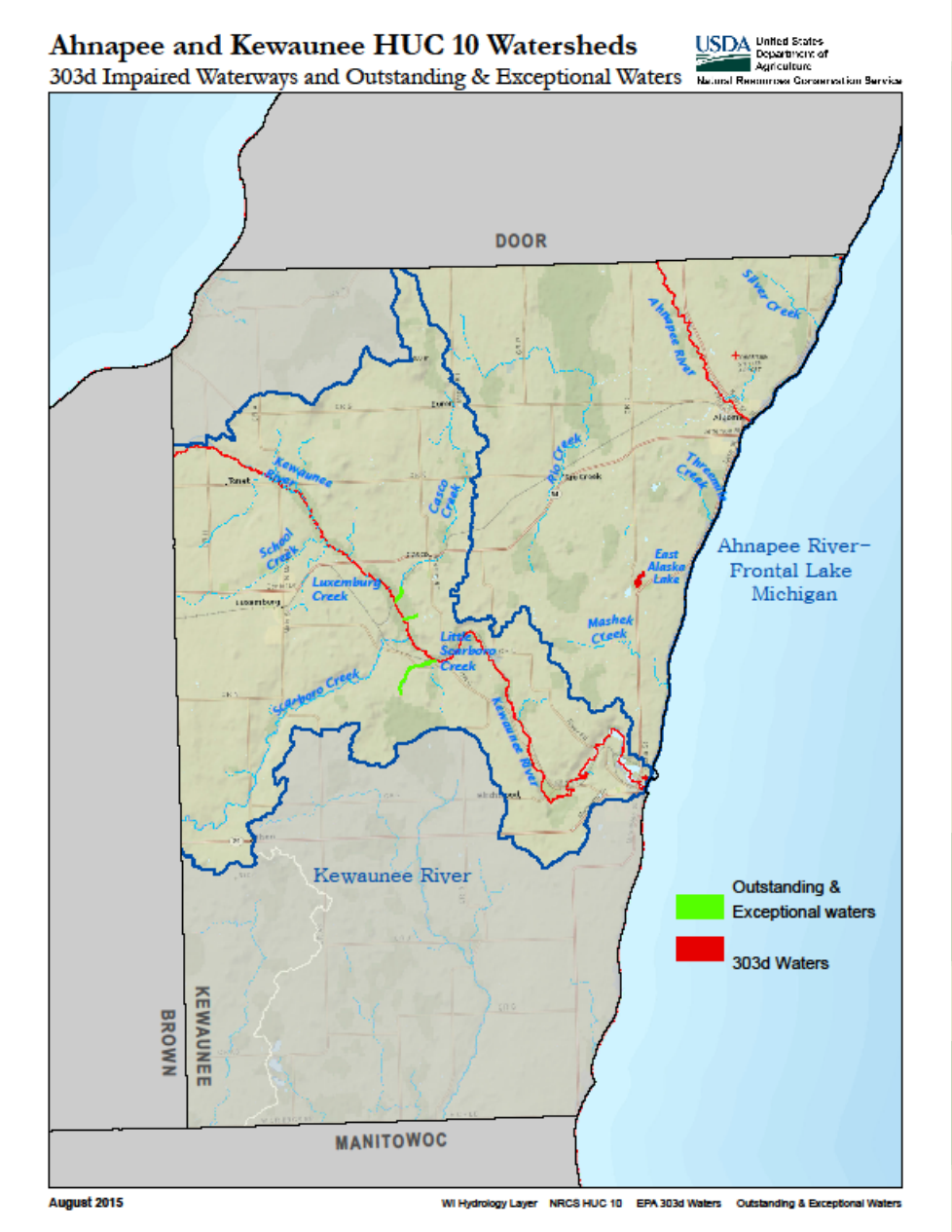
- Total Cattle (Dairy, beef and youngstock) increased from 59,800 To 98,000 (2015 #'s)
- Total # of dairy Cows grew from 30,300-45,500
- 1 of 4 counties to see an increase from 1983-2012



Background

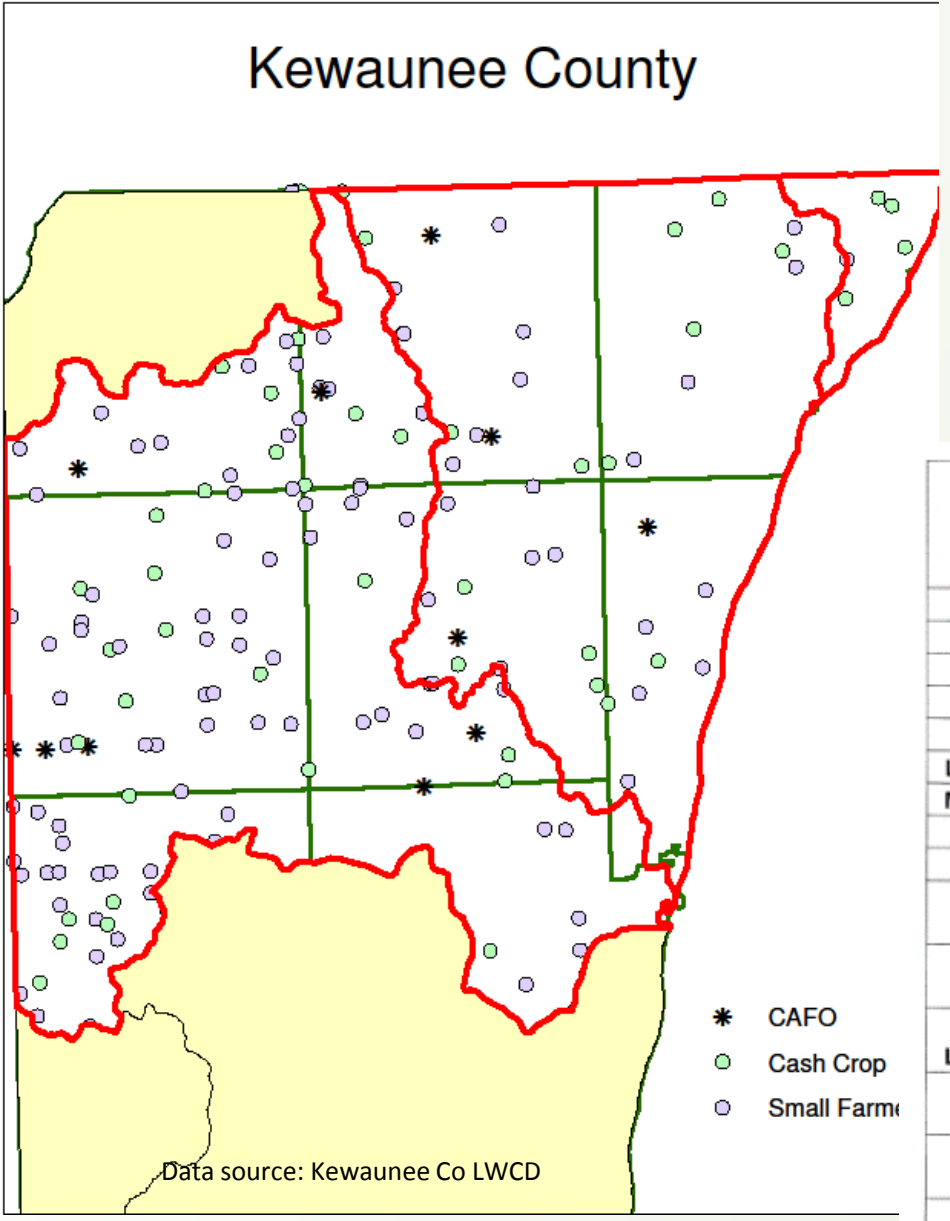
2014 – 101,000 (~76%) of cropland acres in Kewaunee Co. w/ nutrient management plans
2015 – 107,000 (~80%)

Project Area

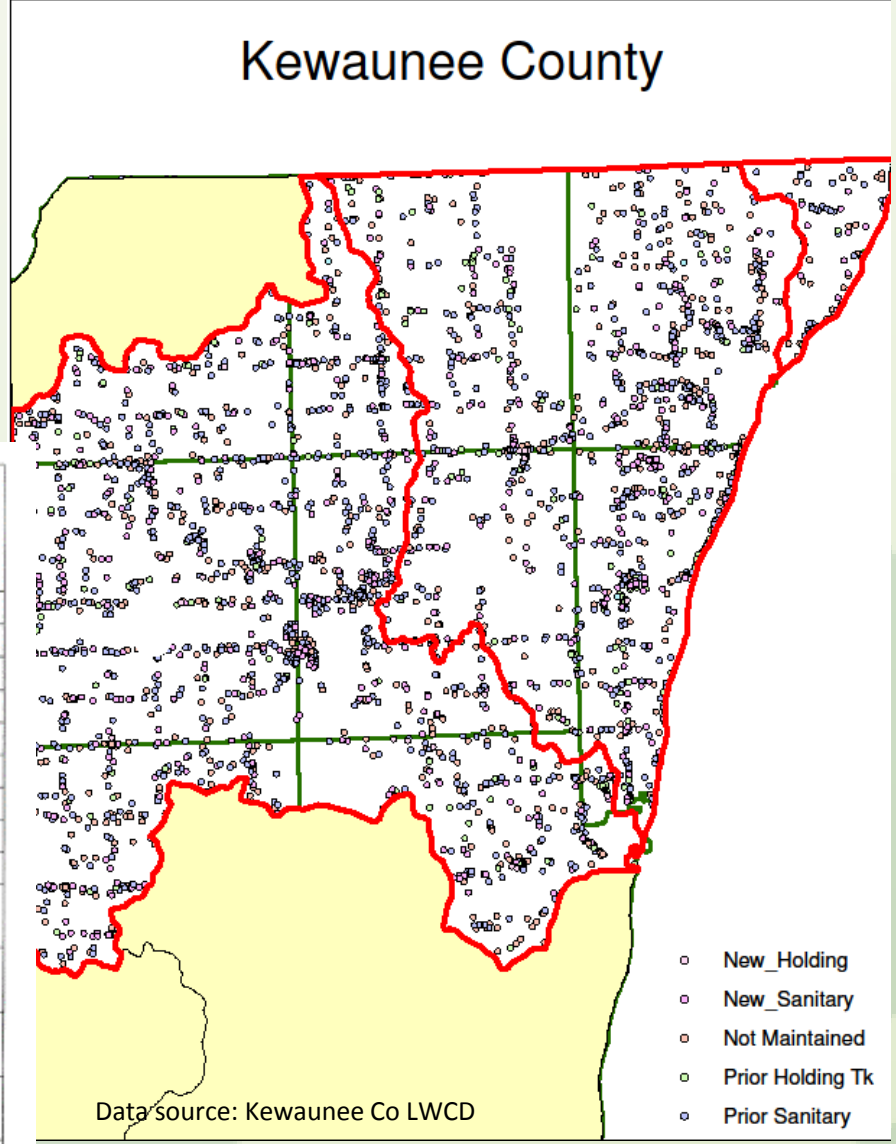


Watershed Inventory

Kewaunee River Watershed	Ahnapee River Watershed
73,472 acres	55,890 acres
303(d) list of impaired surface waters due to sediment & nutrients	303(d) list of impaired surface waters due to sediment & nutrients
90% of cropland acres meet T by 2000	90% of cropland acres meet T by 2000
Water Quality Objectives – reduce sedimentation and nutrient enrichment form nonpoint sources	Water Quality Objectives – reduce sedimentation and nutrient enrichment from nonpoint source pollution
Outlets at Kewaunee Harbor	Outlets at Algoma Harbor
Includes outstanding and exceptional resource waters	
DNR Ranked as High Priority Watershed for both Surface & Groundwater	



TOWNSHIP	TOTAL # OF ALL SYSTEMS	TOTAL # OF INSPECTED & COMPLIANT SYSTEMS	TOTAL # OF NOT INSPECTED SYSTEMS
AHNAPEE	435	329	106
CARLTON	467	357	110
CASCO	476	374	102
FRANKLIN	440	338	102
LINCOLN	385	324	61
LUXEMBURG	565	460	105
MONTPELIER	551	403	148
PIERCE	413	352	61
RED RIVER	463	391	72
WEST KEWAUNEE	535	428	107
VILLAGE OF CASCO	6	5	1
VILLAGE OF LUXEMBURG	4	4	0
CITY OF ALGOMA	12	9	3
CITY OF KEWAUNEE	33	22	11
TOTAL	4785	3796	989



11 of the 16 Permitted CAFO's
173 Total Dairy Farms in County

Kewaunee River Watershed – 1,676
Ahnapee River Watershed – 1,149

Area Wide Watershed Planning Process

Tom Krapf

NRCS Assistant State Conservationist

WATERSHED PLANNING

The interaction of all resources

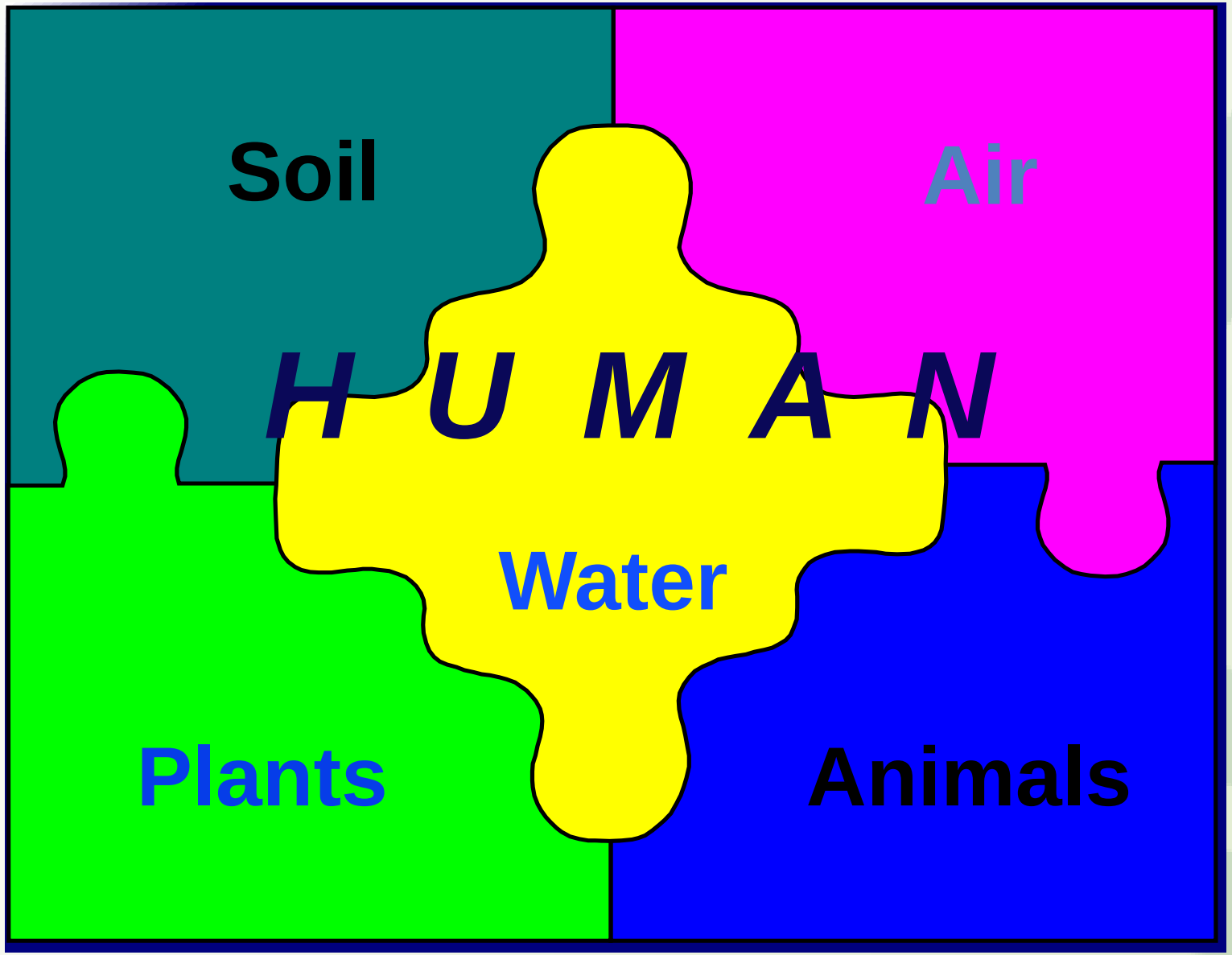
- Natural
- Social & Cultural
- Economic

WATERSHED PLANNING

- Natural resource problem solving and management process
- Identifies Stakeholders
- Integrates economic, social, and ecological considerations to meet private and public needs

WATERSHED PLANNING

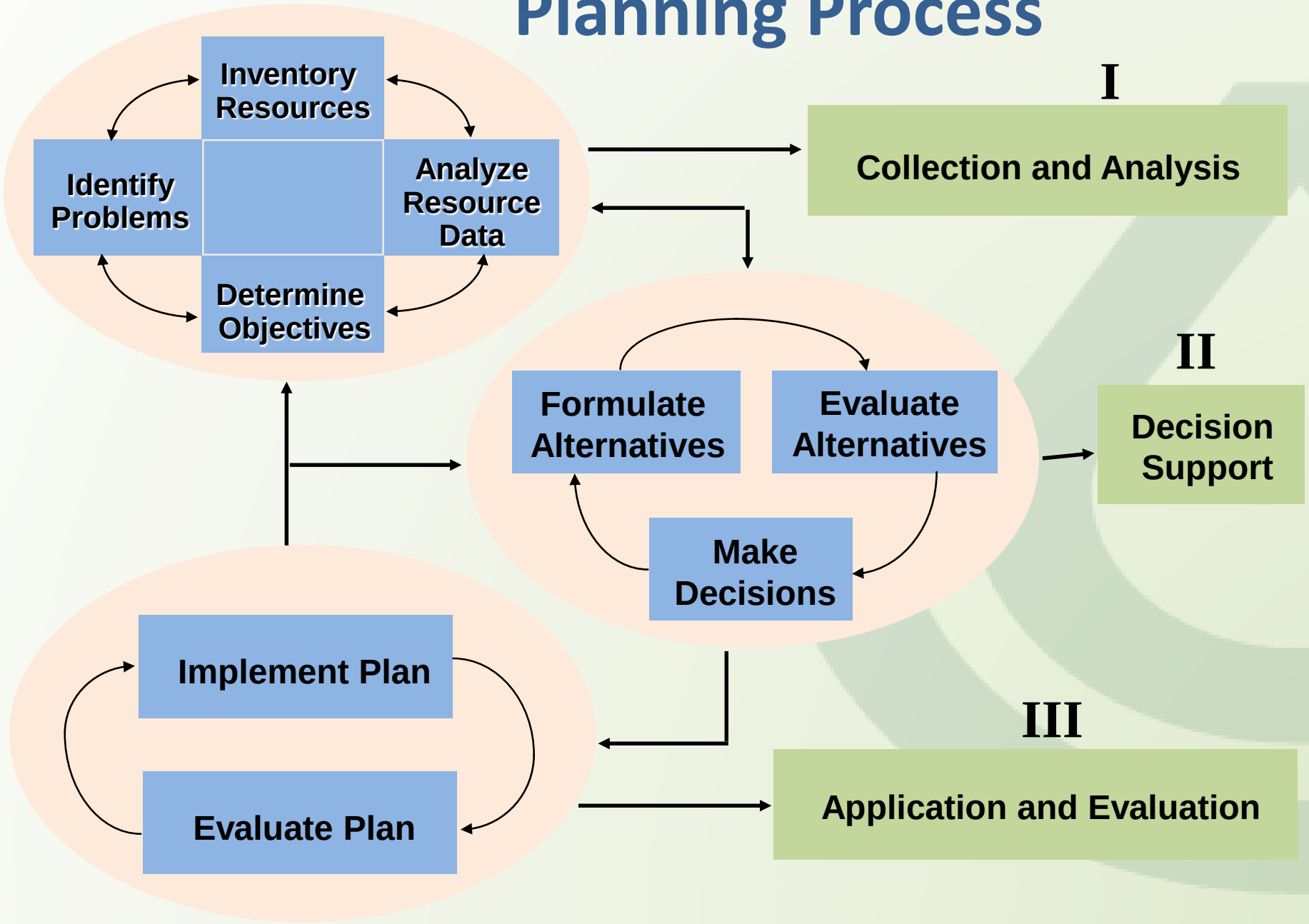
- Emphasizes desired future conditions
- Improves natural resource management
- Minimizes conflict


Soil
Air
H U M A N
Water
Plants
Animals

Pre-planning Activities

- Develop Communication Networks
- Establish Common Ground
- Develop Commitment
- Collect Preliminary Information
- Develop a plan (2 year average)

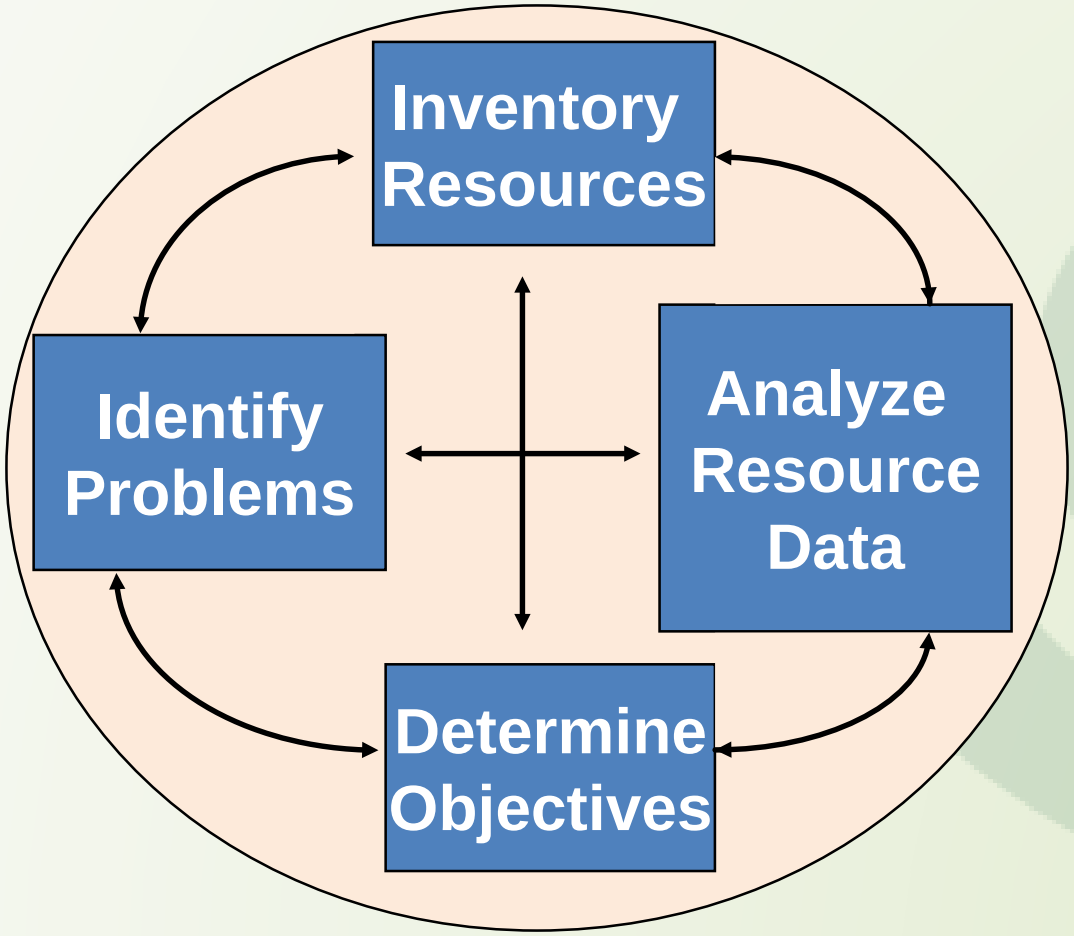
Planning Process



Inputs

- current conditions
- larger context needs
- prior conditions
- current stresses and trends
- current and potential problems

Phase 1: Know Your Watershed



Ecological Features

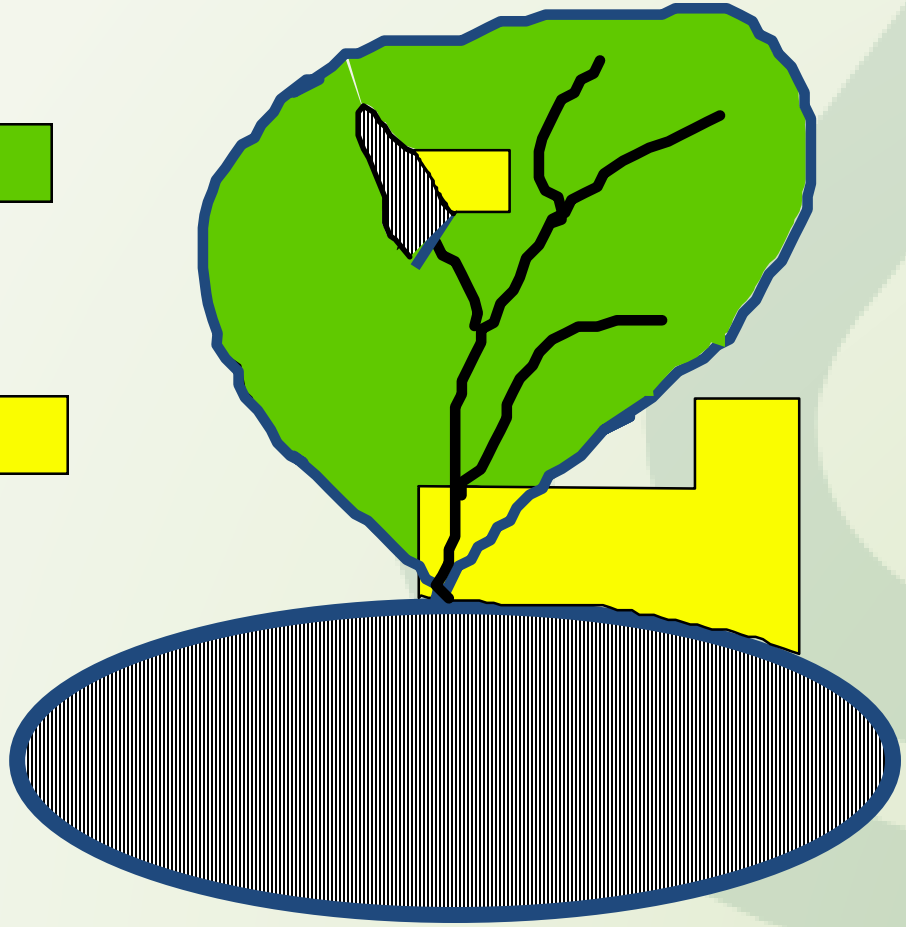
The Role of Sociology

- Knowing our customers values, attitudes, and norms about conservation
- Identifying social groups, networks, and power holders when targeting assistance
- Considering social quality of life indicators in the planning process

Social Groups

Rural

Urban



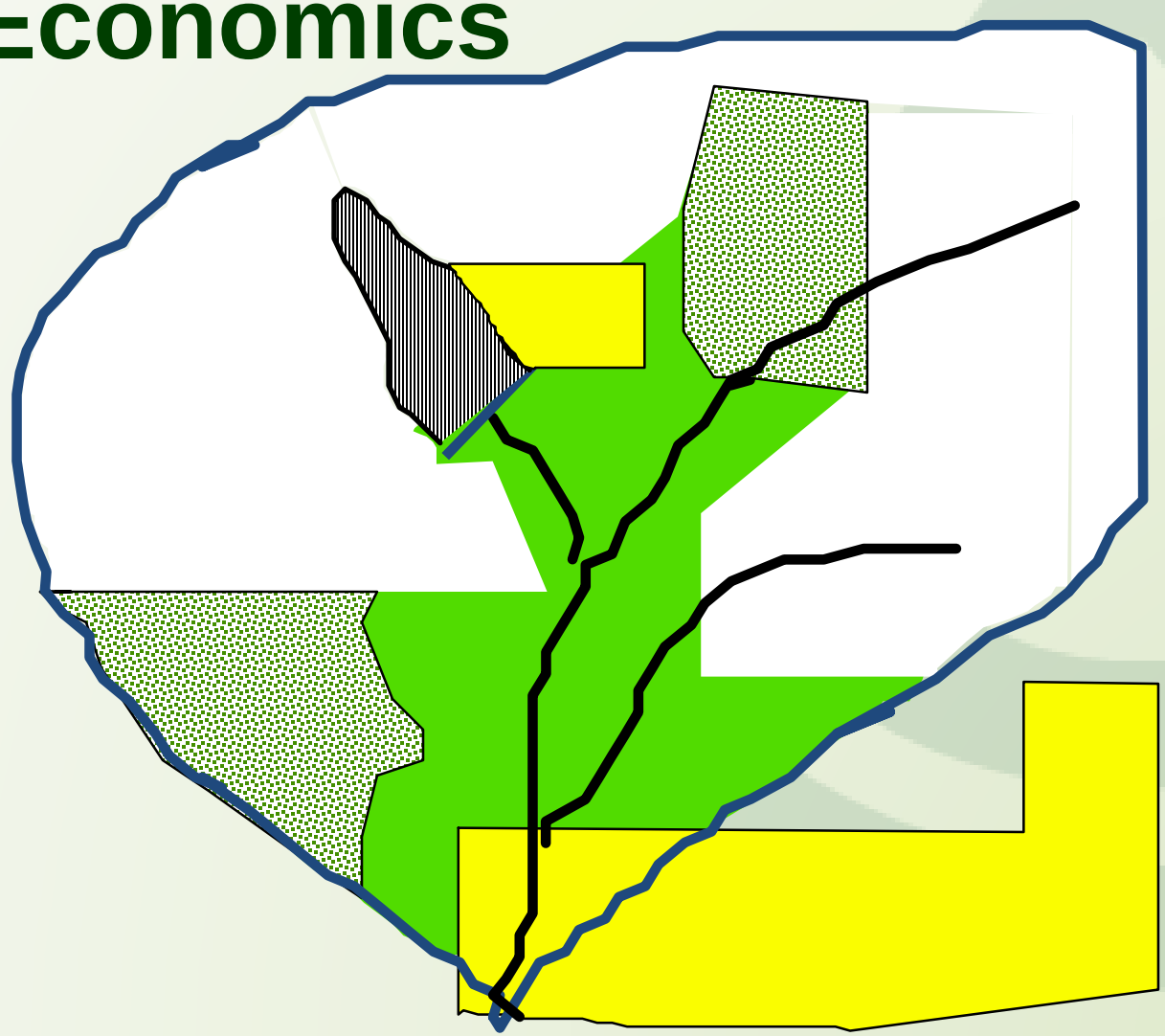
Definition of Social Groups:

- Definite geographic location
- Common interests or values
- Social interaction

Farming Groups: Economics

Capital-intensive farmers

Limited-resource farmers

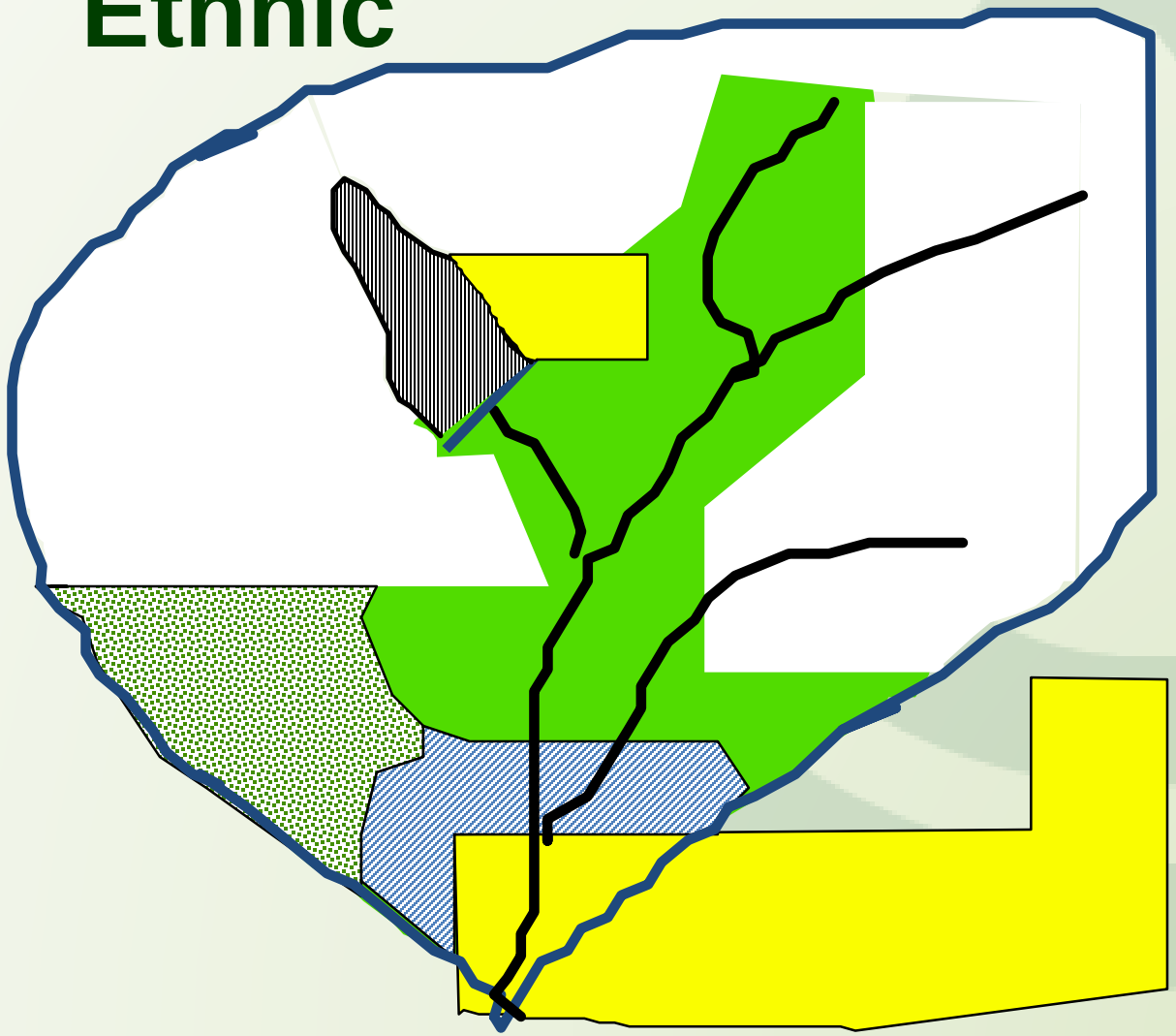


Farming Groups: Ethnic

White

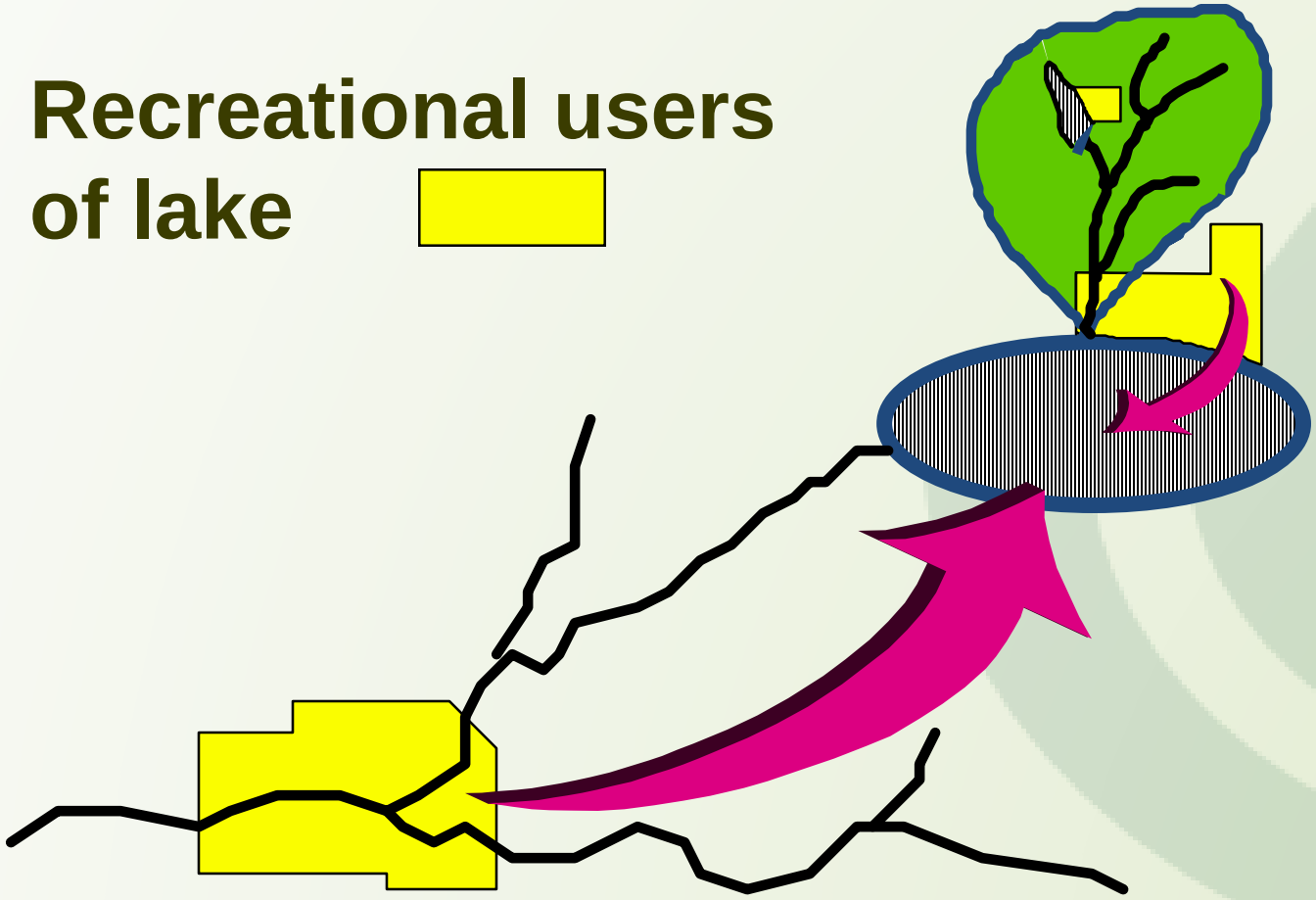
Asian

Hispanic



Area-wide Social Groups

Recreational users of lake



Kewaunee

Ahanpee and Kewaunee HUC 10 Watersheds
Hydrology - River Network
USDA
Ahnapee River-Frontal Lake Michigan
DOOR
Luxemburg
Kewaunee River
KEWAUNEE
BROWN
July 2016

STAKEHOLDERS

- Represent an individual or group
- Serve as decision makers
- Have an interest in, or may be impacted by actions of the plan

Keys to success

- Drawing out values and desires
- Factual basis
- Open-minded to new information and different perspectives
- Having all views represented

Emphasis on

- Leadership & Structure
- Identifying A Process
- Identifying Educational Needs
- Integrating social and economic
- Resolving conflict
- Involving community

STAKE HOLDER’S ROLE IN PLANNING

- Planning Team
- Technical Advisory Team
- Advocate
- Implementer

COMMITTEE STRUCTURE

- Planning Committee
- Technical Committee
- Subcommittee Membership
- Focus Groups
- Supporting Groups

Individual Interests

Versus

Community Interests

Summary Points

- What do we want in the future
- Not just a technical question
- Individual values are important
- Role of science is to inform decision-making

Keys to Success

- Drawing out values and desires
- Factual basis
- Open-minded to new information and different perspectives
- Having all views represented

Points Shared by Area Wide Plans

- Multiple Resource Concerns
- Desired Future Condition through multiple objectives
- Involvement of Communities
- Partnerships
- Consensus Planning

Natural Resources Conservation Service

Natural Resource Impairments & Concerns

Technical Advisory Group
Davina Bonness, County Conservationist
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September 3, 2015

Importance of our resources

- Soil
- Water
- Air
- Plants
- Animals
- Humans

**Regulates Land Use and Management of

"All Wastes"

on Landscapes Containing Areas with

Twenty (20) Feet or Less

of Soil Depth to Carbonate Bedrock between

January 1st and April 15th

ORDINANCE NO. 173-9-14

KEWAUNEE COUNTY PUBLIC HEALTH AND GROUNDWATER PROTECTION ORDINANCE

THE KEWAUNEE COUNTY BOARD OF SUPERVISORS DO HEREBY ORDAIN AS FOLLOWS:

This ordinance is adopted under the authority granted by §§59.02, 59.03, 59.70 and 92.11 of the Wisconsin Statutes.

The Kewaunee County Board of Supervisors, duly assembled this 23rd day of September 2014, hereby adopt the Kewaunee County Public Health and Groundwater Protection Ordinance, as fully set forth in the attachment hereto.

Effective Date: This ordinance shall take effect upon passage and publication.

Respectfully Submitted,

LAND AND WATER CONSERVATION COMMITTEE

Ron Paider

Joh T Pagel

Bob Garfinkel

APPROVED AS TO FORM

Jeffrey R. Wisnicky
Corporation Counsel

FISCAL IMPACT STATEMENT:

	YES	NO	ABSENT	ABSTAIN
Benes, P	✓			
Cravillion, D.	✓			
Garfinkel, R.	✓			
Haske, V.	✓			
Heidmann, B.	✓			
Heuer, R.	✓			
Jahnke, S.	✓			
Kirchman, L.	✓			
Luft, L.	✓			
Mastalir, J.	✓			
Paape, G.	✓			
Pagel, J.	✓			
Paider, R.	✓			
Reckelberg, G.	✓			
Romdenne, T.	✓			
Shillin, K.	✓			
Sinkula, L.	✓			
Tebon, K.	✓			
Wagner, C.	✓			
Weidner, R.	✓			
TOTALS	20	0	0	0

Human Health

Host	Microbe	No. Wells Detected	Concentration Range (genomic copies/L)
Human-specific	Adenovirus C, D F	1	26
	Adenovirus A	1	3
	Enterovirus	2	21 and 21
	All	3	
Bovine-specific	Polyomavirus	2	16 - 18
	Bacteroides	1	6
	All	3	
Non-defined	Pepper mottle virus	2	22 and 22
	Salmonella spp.	4	2 - 24
	Campylobacter jejuni	1	11
	All	5	
Indicators	Total coliforms	1	3 MPN
	E. coli	1	1 MPN

Economy & Tourism

RESOURCE CONCERN VOTING SHEET

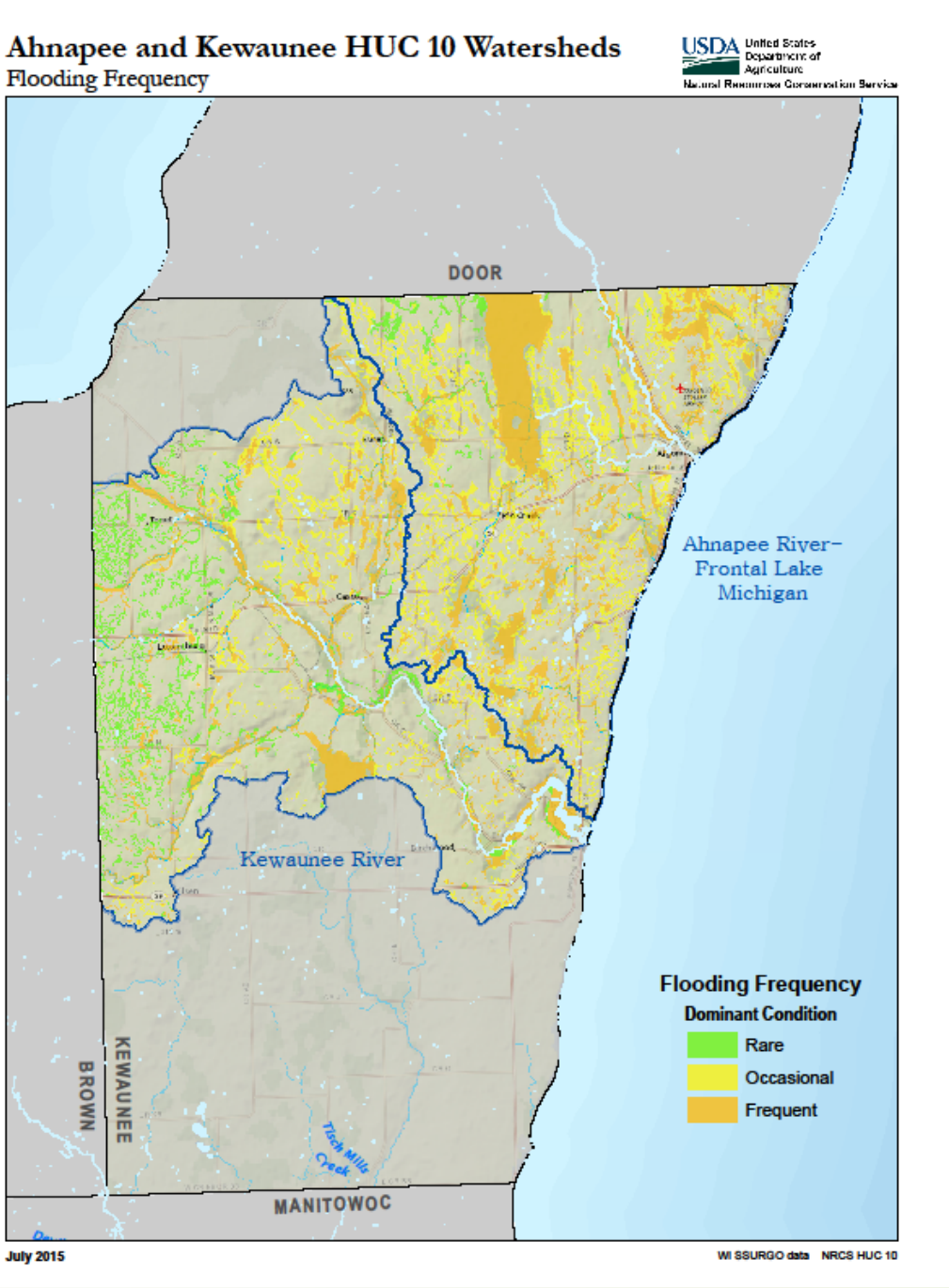
	RESOURCE CONCERN	DEFINITION	YOUR RATING		
1	**Air Quality – Objectional Odors**	*Emissions of odorous compounds cause nuisance conditions*	HIGH	MEDIUM	LOW
2	**Excess Water – Flooding, Ponding & Seasonal High Water Table**	*Surface water or poor subsurface drainage restricts land use and management goals*	HIGH	MEDIUM	LOW
3	**Inadequate Habitat for Fish & Wildlife – Habitat Degradation**	*Quantity, quality or connectivity of food, cover, space, shelter and/or water is in adequate to meet requirements for fish & wildlife species*	HIGH	MEDIUM	LOW
4	**Water Quality Degradation - Excess Nutrients in Surface & Groundwaters**	*Nutrients – organic & inorganic are transported to receiving waters through surface runoff and/or leaching into shallow groundwaters in quantities that degrade water quality and limit use for intended purpose*	HIGH	MEDIUM	LOW
5	**Water Quality Degradation - Excess pathogens & chemicals from manure, bio-solids or compost applications**	*Pathogens, pharmaceuticals and other chemicals carried by land applied soil amendments are transported to receiving waters in quantities that degrade water quality and limit use for intended purposes.*	HIGH	MEDIUM	LOW
6	**Soil Erosion – Sheet, Rill & W**	*Detachment and transportation of soil particles caused by wind or rain that degrades soil quality*	HIGH	MEDIUM	LOW
7	**Soil Erosion – Concentrated**	*Untreated gullies may enlarge or occur in the same flow area every year from rainfall, snowmelt or irrigation*	HIGH	MEDIUM	LOW
8	**Water Quality Degradation - Excessive Sediment in Surface Waters**	*sheet, rill and wind erosion that threatens to degrade surface water quality and limit use for intended purpose*	HIGH	MEDIUM	LOW
9	**Soil Quality Degradation – Compaction**	*Management induced soil compaction resulting in decreased rooting depth that reduces plant growth, animal habitat and soil*	HIGH	MEDIUM	LOW
10	**Soil Quality Degradation – Organic Matter Depletion**	*Soil organic matter is not adequate to provide a suitable medium for plant growth, animal habitat and soil biological activity*	HIGH	MEDIUM	LOW

Air Quality – Objectionable Odors

Emissions of odorous compounds cause nuisance conditions

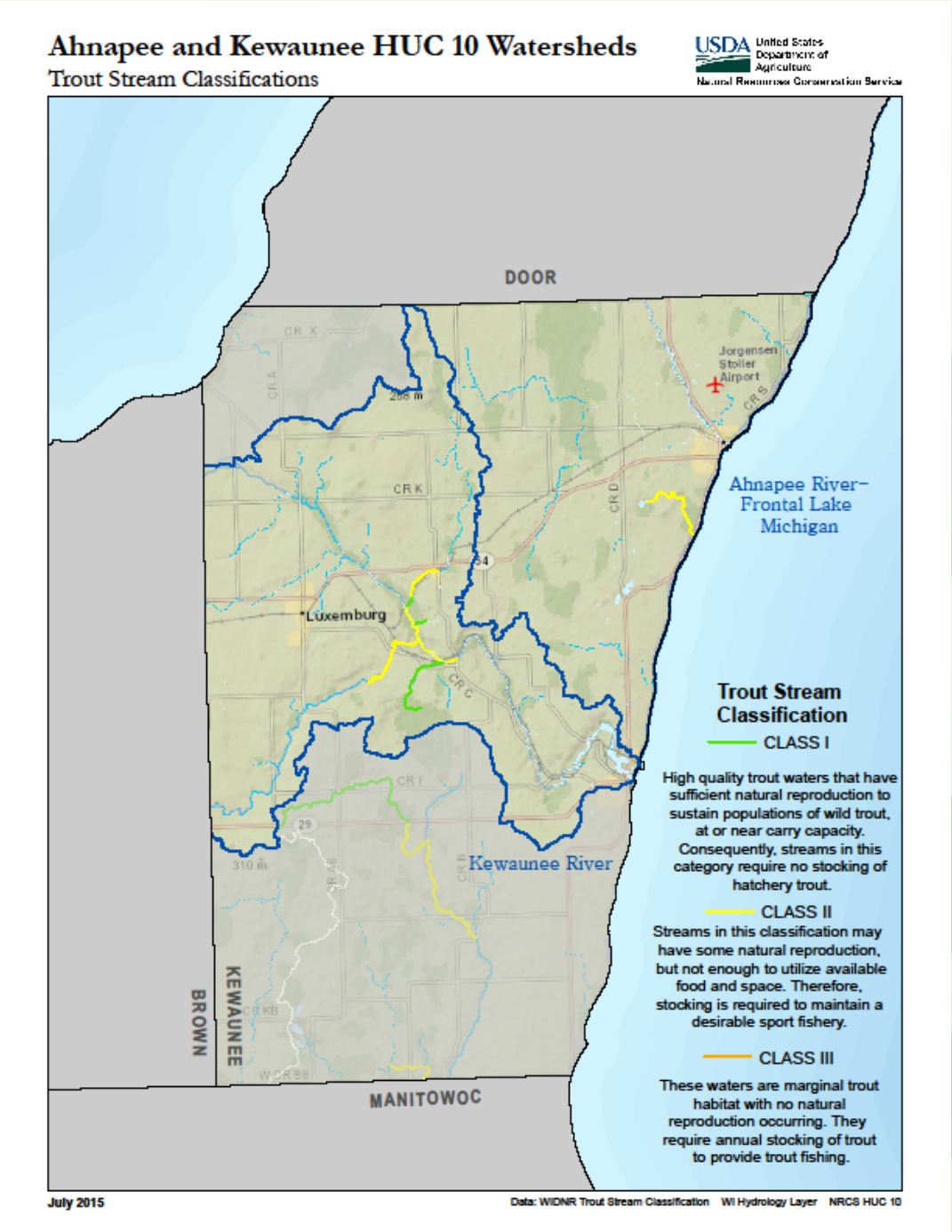
Excess Water –Flooding, Ponding & Seasonal High Water Table

Surface water or poor subsurface drainage restricts land use and management goals



Inadequate Habitat for Fish & Wildlife – Habitat Degradation

Quantity, quality or connectivity of food, cover, space, shelter and/or water is inadequate to meet requirements for fish & wildlife species



Water Quality Degradation – Excess Nutrients in Surface & Groundwaters

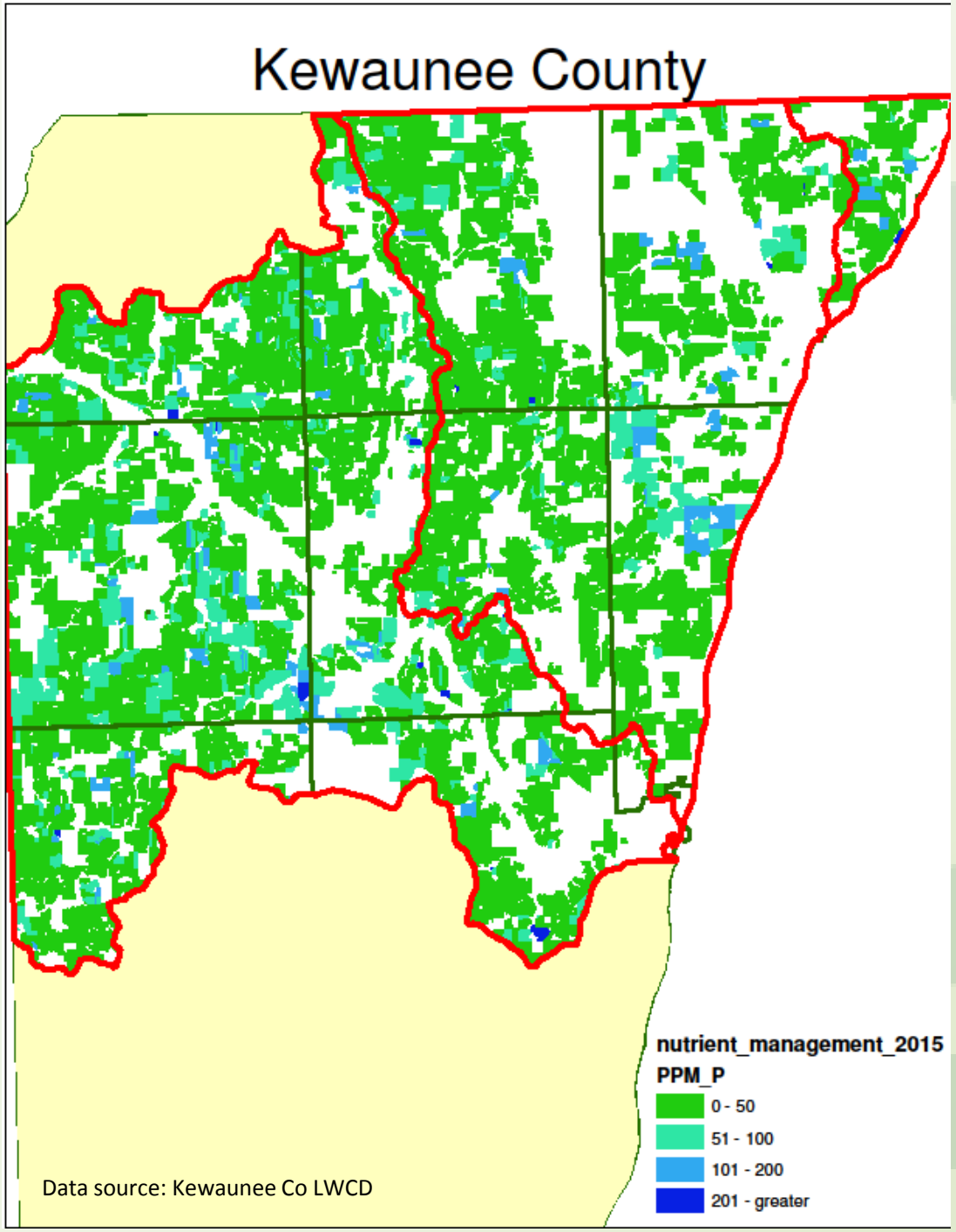
Nutrients – organic & inorganic are transported to receiving waters through surface runoff and/or leaching into shallow groundwaters in quantities that degrade water quality and limit use for intended purpose

Water Quality Degradation – Excess pathogens & chemicals from manure, bio-solids or compost applications

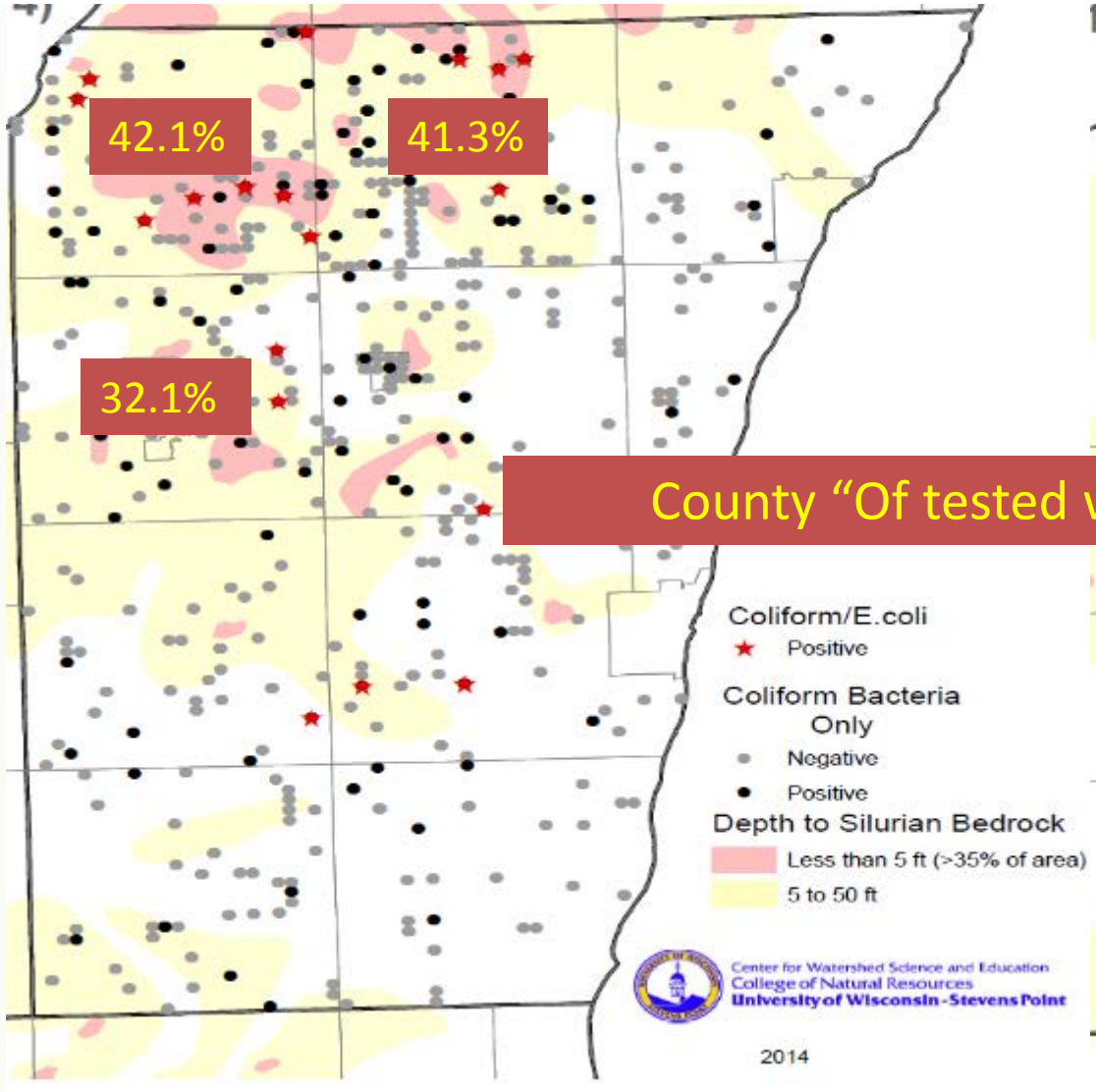
Pathogens, pharmaceuticals and other chemicals carried by land applied soil amendments are transported to receiving waters in quantities that degrade water quality and limit use for intended purposes

Surface Water Quality

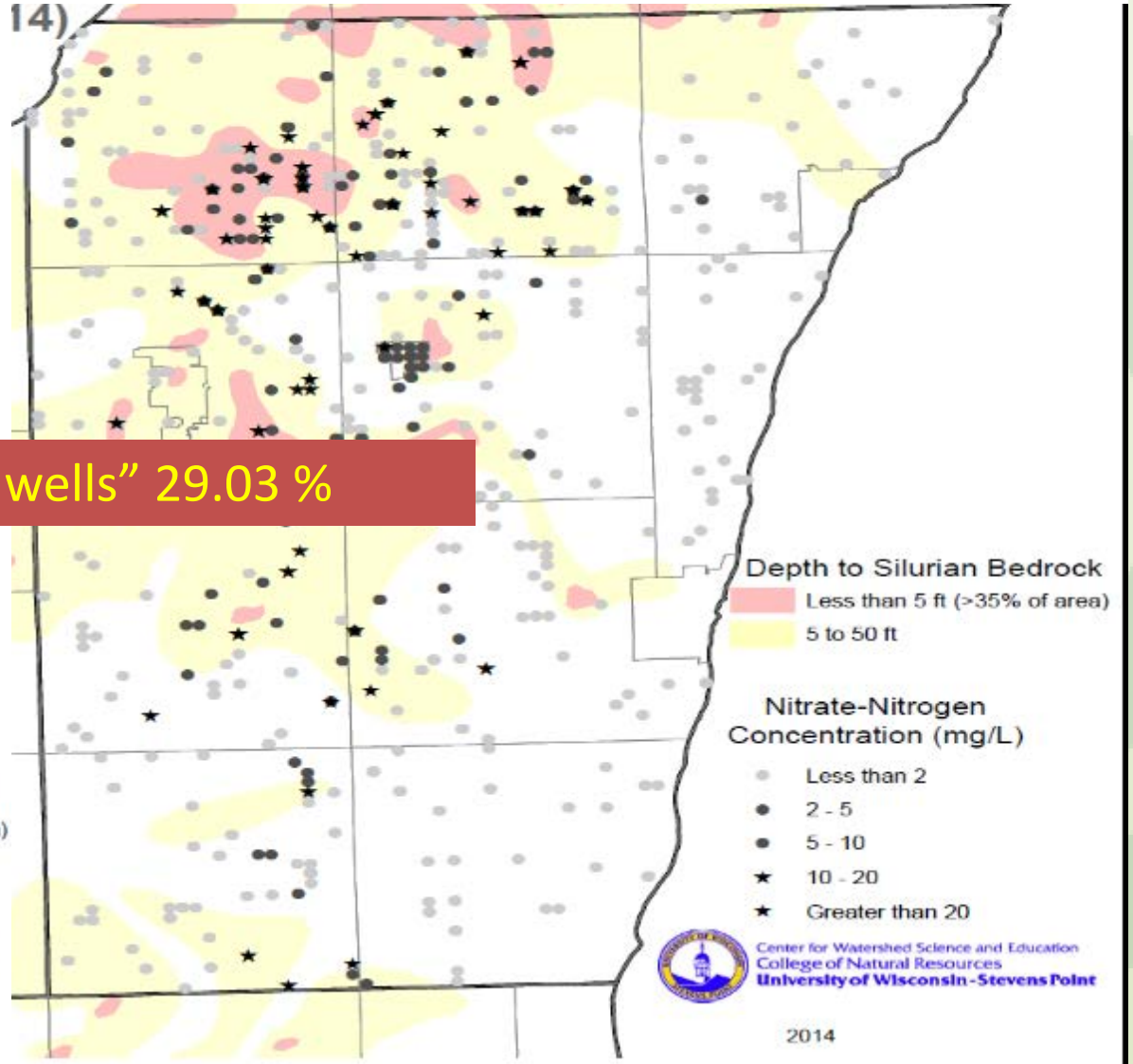
Soil Test P	P application
<50 ppm	P application not to exceed total P recommendation for the crop rotation
50-100 ppm	P application not to exceed total P removal for crops to be grown over whole rotation
>100 ppm	Eliminate unless required by highest P demanding crop in rotation, 20 lbs P2O5 in starter is allowed



Groundwater Quality



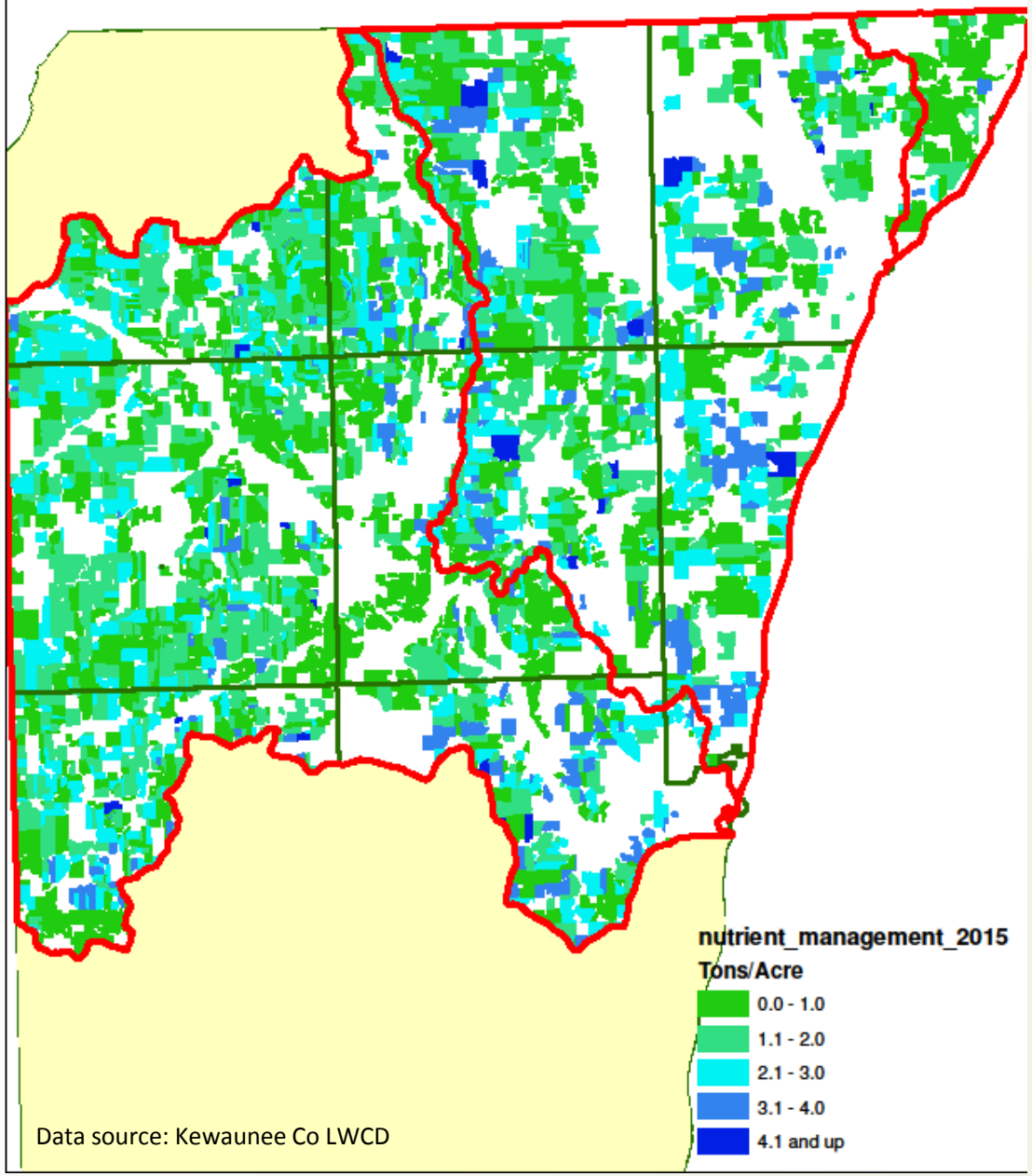
County "Of tested wells" 29.03 %



Soil Erosion- Sheet, Rill & Wind

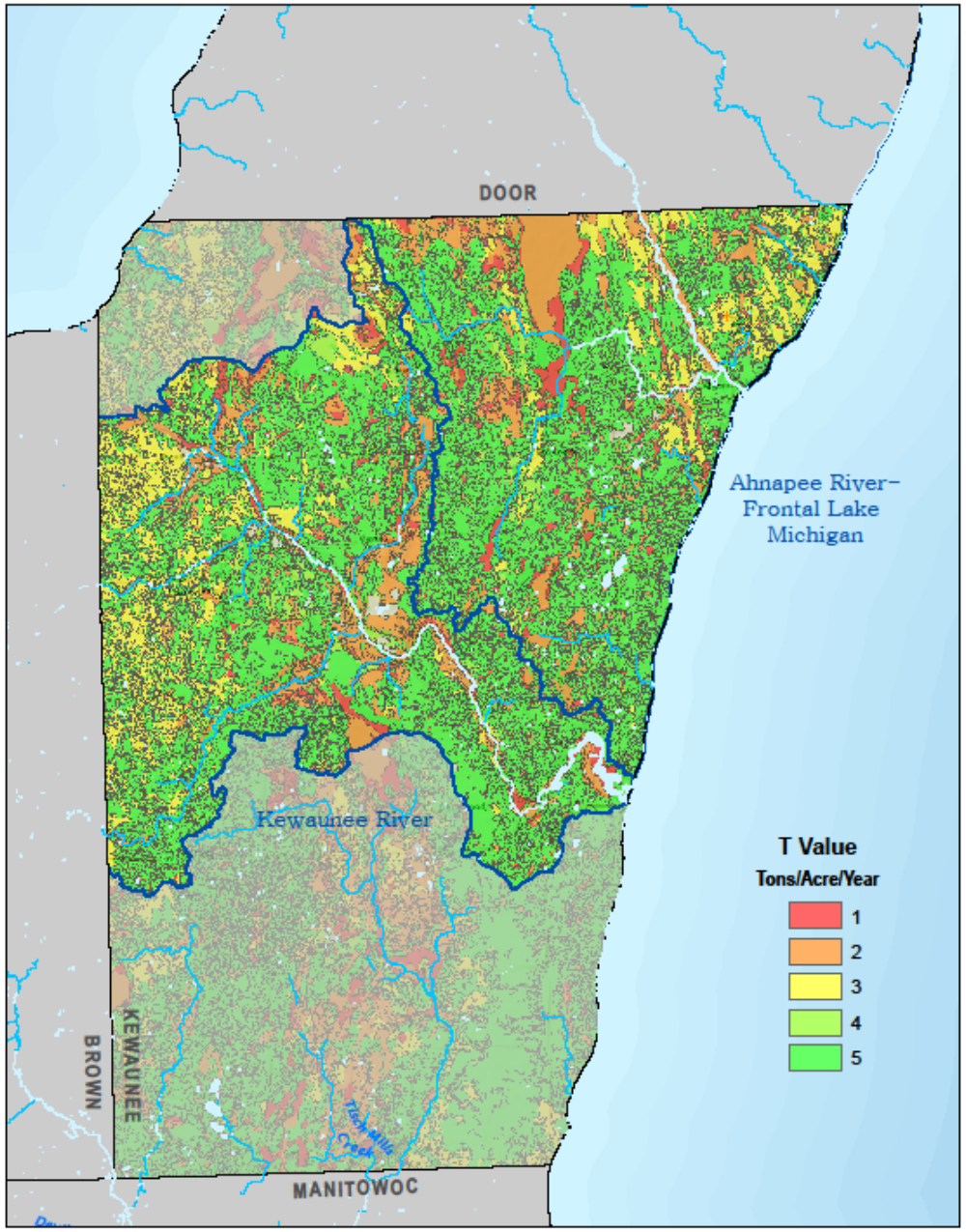
Detachment and transportation of soil particles caused by wind or rain that degrades soil quality

Kewaunee County
Rotational Average Soil Loss



Data source: Kewaunee Co LWCD

Ahnapee and Kewaunee HUC 10 Watersheds
T Values



Soil Erosion – Concentrated Flow

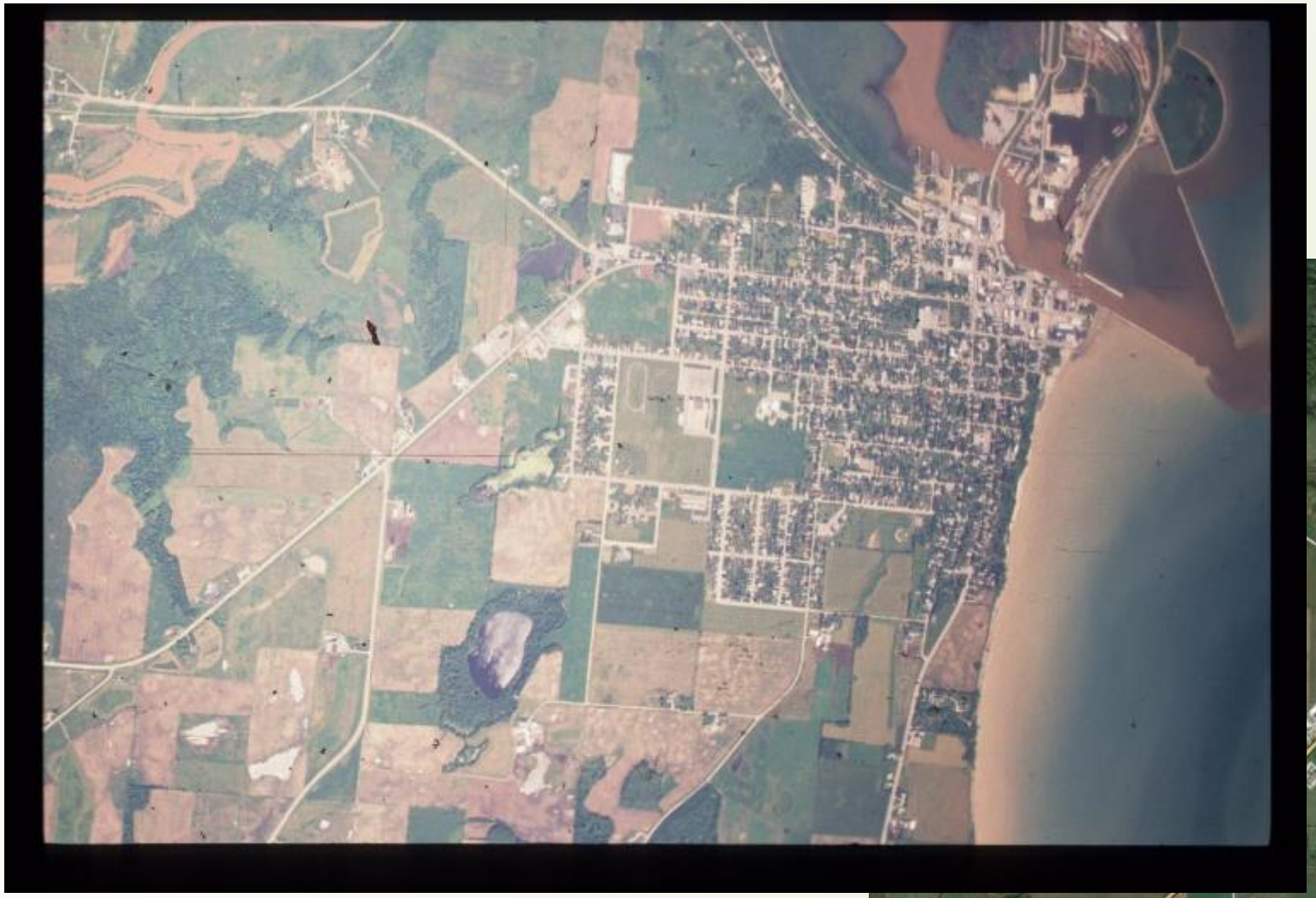
Untreated gullies may enlarge or occur in the same flow area every year from rainfall, snowmelt or irrigation

PRESENT

1985

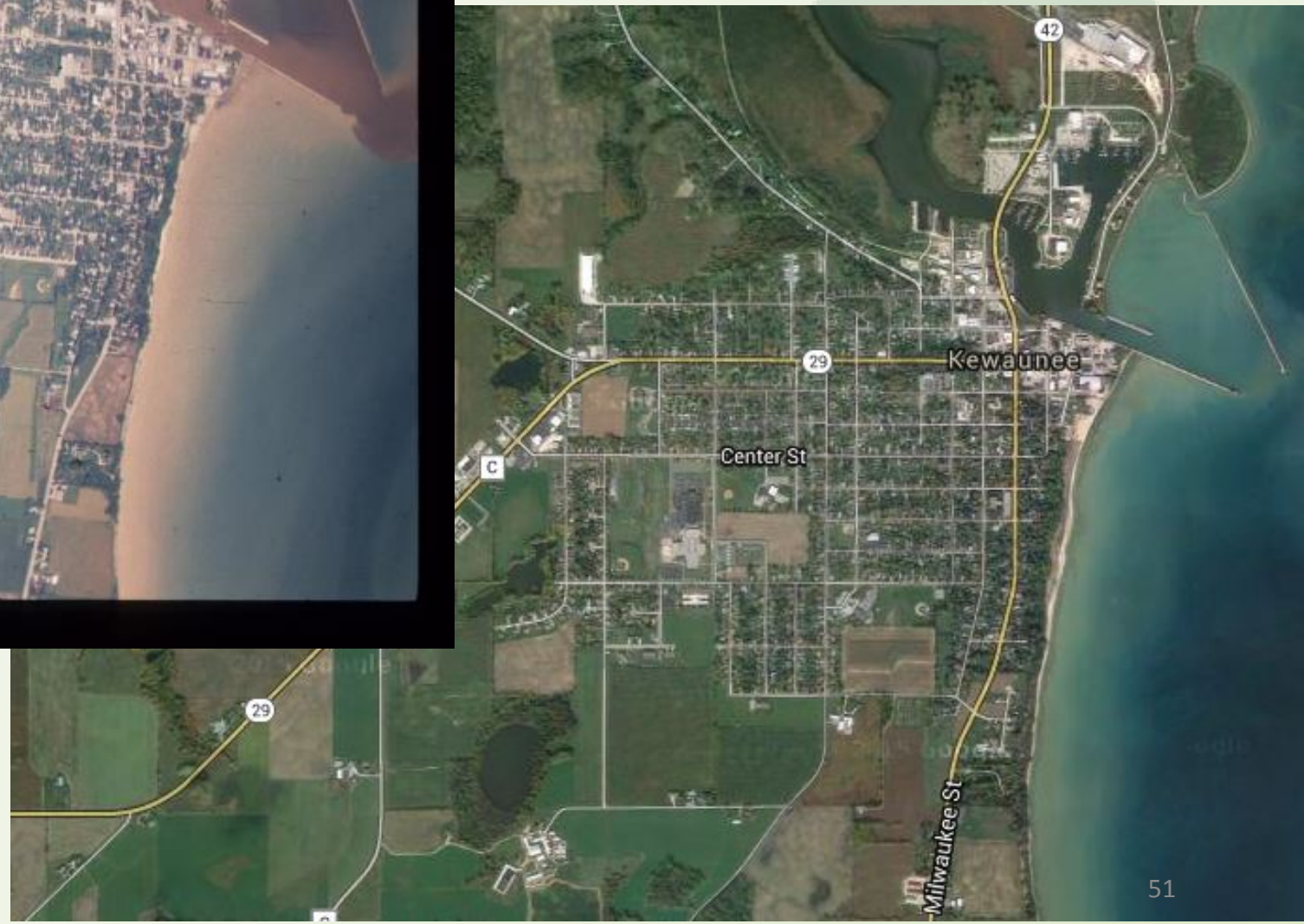
Water Quality – Excessive Sediment in Surface Water

Offsite movement of sediment from sheet, rill and wind erosion that threatens to degrade surface water quality and limit use for intended purpose



1993

2015

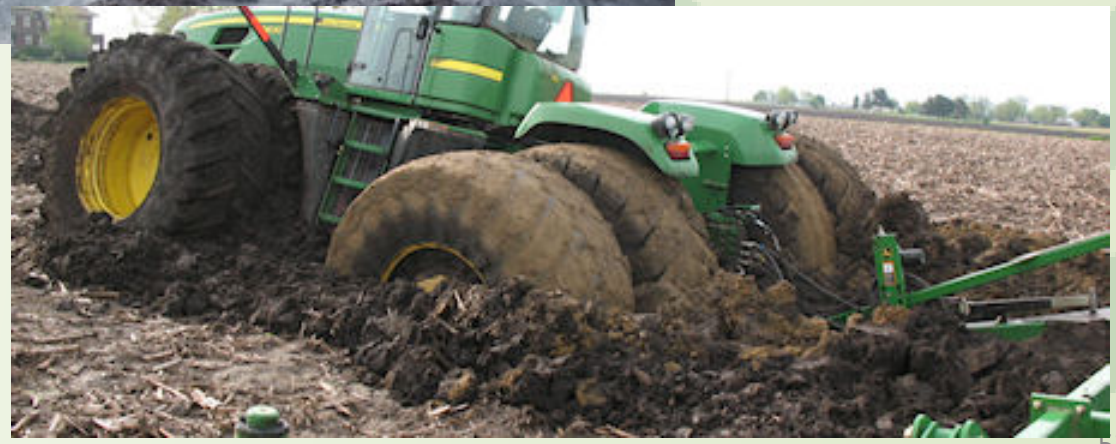


Soil Quality Degradation - Compaction

Management induced soil compaction resulting in decreased rooting depth that reduces plant growth, animal habitat and soil biological activity

1948

PRESENT



Soil Quality Degradation – Organic Matter Depletion

Soil organic matter is not adequate to provide a suitable medium for plant growth, animal habitat and soil biological activity

1989

PLEASE VOTE

Summary of Results

Questions

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